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Idaho Pole Superfund site

By the Montana Department of Health and Environmental Sciences and the U.S. Environmental Protection Agency

Remedial investigation nearly complete

The remedial investigation/feasibility study (RI/FS) began in April 1990, after EPA approval of the RI/FS work plan. The Montana Department of Health and Environmental Sciences and the U.S. Environmental Protection Agency focused the remedial investigation on four areas:

— potential sources,
— groundwater,
— surface water and
— soils/sediment.

At this time the remaining activity of the remedial investigation is groundwater sampling in June 1991. The Remedial Investigation/Feasibility Study Work Plan also provided for supplemental field work should additional data needs be identified. As a result, MDHES conducted supplemental field work in April and May 1991. Unless MDHES and EPA identify a critical need for additional data, sampling for the remedial investigation will be complete after the June sampling. Sampling may be required as part of subsequent site actvities such as possible treatability testing, engineering design, or verification of cleanup.

Potential sources investigation

The study:

The potential sources investigation determined the location and extent of contaminant sources at the site. The contaminants of concern are used for treating wood and include pentachlorophenol, petroleum compounds (consisting of about a dozen compounds), and dioxins/furans.

The results:

The primary source of contamination MDHES identified is an oily mixture of diesel and pentachlorophenol originating under the Idaho Pole plant treating area and reaching north past the interstate highway into the area known as the Idaho Pole pasture. This wood treating fluid does not mix with water and thus floats on top of the water table. Contamination has surfaced mainly in the historic drainage along the east side of the pasture and it is estimated that it reaches to the edge of the aspen grove, a distance of 1,000 feet. The east and west boundaries of the contaminant area are roughly parallel and about 200 feet wide. Contamination is most concentrated around the retort and butt vat, in the office area and in the Idaho Pole pasture. Primarily because it doesn't mix with water, the diesel/pentachlorophenol plume is in many discrete pockets rather than being one large connected pool.

MDHES and EPA suspected previous pond locations and the former Northern Pacific Railroad roundhouse to be potential sources of site contamination. Ponds were suspected because there is no information available on what materials have been used to fill them. The roundhouse was investigated

Cont. on page 2

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IDAHO POLE SUPERFUND
PUBLIC MEETING

Wednesday, June 19, 1991
7 p.m.
Bozeman Public Library

The Montana Department of Health and Environmental Sciences will hold a public meeting to update the public about the results of investigations at the Idaho Pole Superfund site located in Bozeman. MDHES also will discuss with the public their concerns and questions about past and future site activities.
For more information, call Jane Stiles or Kevin Kirley at the MDHES office in Helena: 1-800-648-8465.

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because roundhouse operations tend to be an historic contamination source. The investigation indicates that neither the roundhouse nor the ponds contribute to groundwater or surface water contamination, but there are soil contaminant concentrations that may be associated with past railroad activities near the roundhouse. A drain channel associated with the roundhouse may act as a conduit for contamination from the treating area to somewhere near Mill Creek.

MDHES discovered soil contamination at variable depths throughout the site. The concentrations indicate that the contaminants are likely the result of drippings, intermittent fill placement on the site, and the movement of equipment and vehicles from contaminated areas around the plant.

Groundwater investigation

The study:

The groundwater investigation was the most intensive of the four investigations, because groundwater is the most probable pathway for contamination to reach nearby residents via their household wells. Unlike the contaminants floating on top of the groundwater, other site contaminants mix with the groundwater. MDHES investigated the groundwater over a complete calendar year in order to determine how the groundwater may change in response to seasonal influences and to base cleanup decisions on a sufficient amount of information. MDHES sampled approximately 30 monitoring wells to determine the boundaries of the contaminant plume (area of groundwater contamination) and to evaluate groundwater movement. Additionally, MDHES quarterly took samples of drinking water at 10 nearby residences to acquire information about potential human exposure.

The results:

MDHES found that the contaminated groundwater area generally surrounds the area of contaminants floating on the the groundwater but is more diffuse and may reach to Rocky Creek between L Street and the confluence of Mill and Rocky creeks.

The contaminated groundwater plume has reached part of the residential area northwest of L Street. The northwest boundary of the groundwater plume generally follows L Street with some spreading as it approaches Rocky Creek. The residential wells nearest L Street and south of Rocky Creek are at highest risk of becoming contaminated.

Although the plume may reach Rocky Creek, it appears that Rocky Creek receives little direct groundwater flow. The depth of the contaminated groundwater is about 30 feet in the upper portions of the aquifer. It is possible that contamination has gone deeper. MDHES and EPA are currently considering methods to evaluate deep contamination.

Surface water investigation

The study:

During the surface water investigations, MDHES checked the water quality of Rocky and Mill creeks to get a better idea of how surface and groundwater interact and how contaminants from the site and three intermittent ditches may be affecting those waterways. MDHES placed monitoring stations in the two creeks to get information on flow capacity and rate, acidity-alkalinity, temperature and amount of dissolved oxygen present in the water. MDHES also collected water samples and analyzed them for contamination.

The results:

The surface water investigation determined low level contaminants were found in Rocky and Mill creeks during mid-winter low flow conditions. Some of the standing water in ditches contained measurable contaminants, but because of drought conditions MDHES was unable to collect samples from ditches flowing into Rocky or Mill creek.

Soil/sediment investigation

The study:

The soil/sediment investigation was conducted in order to gain an historic perspective of contaminant migration through site soil, groundwater and surface water. MDHES collected soil samples primarily to characterize type and soil physical properties and to determine contaminant levels. Soil samples were collected from areas where contamination was suspected and in areas determined to represent "normal," unaffected conditions. Sediments from the ditches and creeks were collected to confirm evidence of contaminant migration through surface water.

The results:

The ditch sediments in general and particularly the one near the electric substation, showed high levels of contaminants, although sediments in the creeks show much lower levels of contamination. Most contamination found in the sediments adheres to the particles and is less likely to mix with water. However, these contaminants may potentially impact aquatic life.

Upstream creek samples were collected to measure potential off-site impacts. Preliminary results indicate that no off-site source is contributing to site contamination.

TOLL-FREE SUPERFUND HOTLINE

If you have questions, comments or concerns about a Superfund site in Montana, or about Superfund in general, please call our toll-free hotline. The hotline is in operation from 8 a.m. to 5 p.m. weekdays, except holidays.

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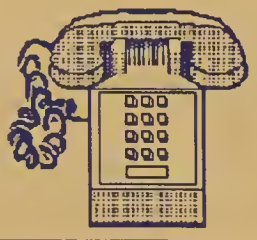


The next steps in the process

The results of the field investigation, along with the risk assessment and possible treatability testing make up the remedial investigation. The remedial investigation is the basis for conducting the feasibility study, which is the process of developing, screening, and evaluating remedial cleanup alternatives. An initial activity of the feasibility study is to identify likely cleanup technologies.

Potential cleanup technologies

Initially, MDHES and EPA must consider all potentially viable cleanup technologies. As more data is collected about a site and more evaluation is conducted on the likelihood that a technology will work, the list becomes smaller. It is likely that a combination of technologies will be used for different media, and for varying levels of contaminants. The following table summarizes technologies for the three contaminated zones at the Idaho Pole site:

Each cleanup technology can be further subdivided into one or more specific processes. In addition, some technologies or processes occur either with the wastes in place or with the wastes removed and placed in a treatment unit, generally on site. The feasibility study also includes an evaluation of a no-action alternative and an assessment of institutional controls. "No-action" alternative means no cleanup action is conducted based on a determination that the risks are acceptable. Institutional controls may include zoning, access restrictions, well drilling restrictions or alternate water supply or deed restrictions. Nevertheless, the goal of the remedial program is to reduce the mobility, toxicity, and volume of contamination in order to protect public health, welfare, and the environment. That will continue to be the focus of the feasibility study.

Treatability Testing

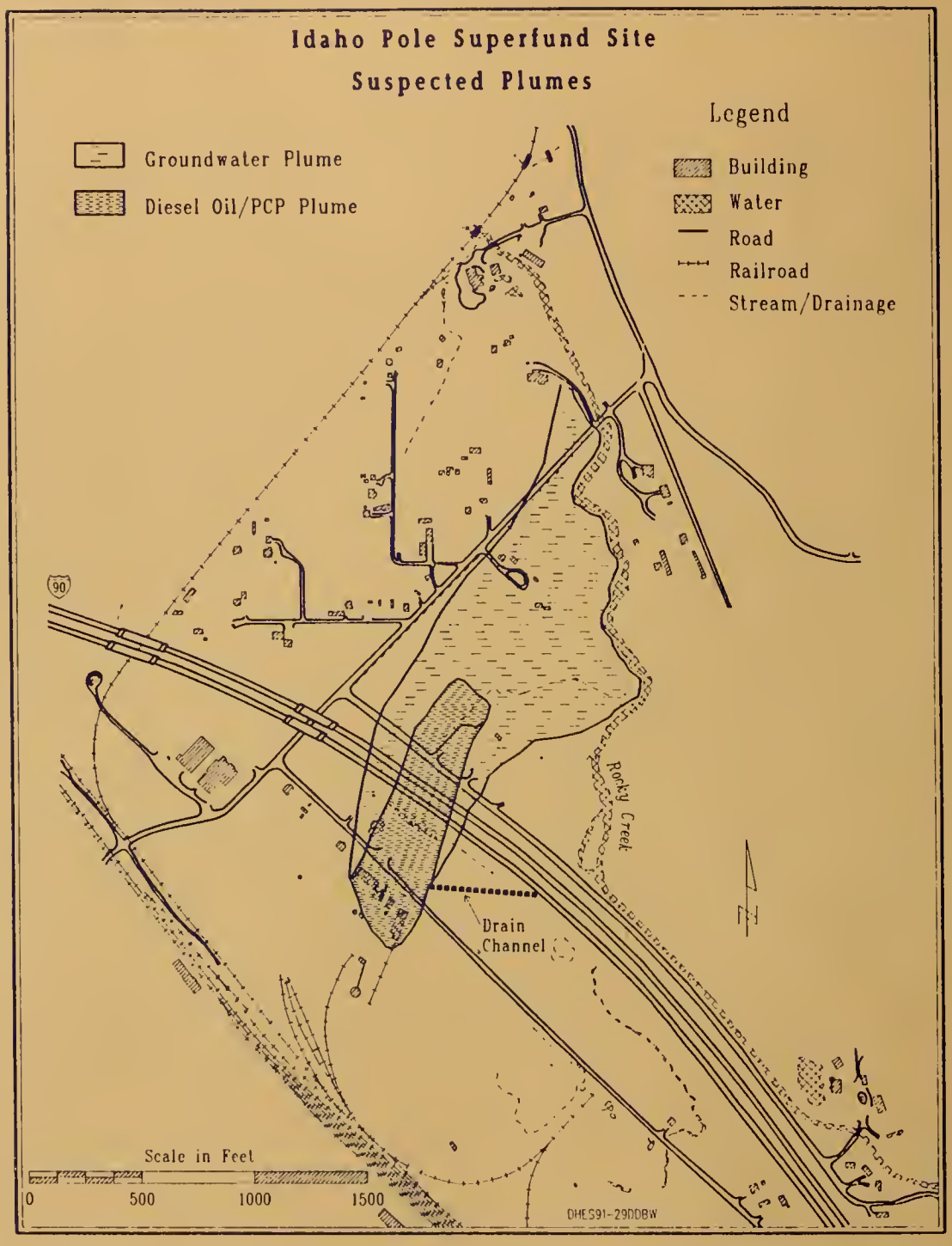
Treatability testing is conducted for a specific remedial technology if there is not sufficient information available to evaluate the feasibility of using that technology for cleanup at the site. Existing data for a potential technology is thoroughly reviewed in order to see what is known about it. If a decision is made to conduct treatability testing, the first step is a laboratory study. Enough information about the technology may be collected during the laboratory study to evaluate feasibility. If not, and the technology is still promising, a field study maybe initiated. A field study is more costly and time consuming than a laboratory study. Only the minimum data necessary to evaluate the technology during the detailed evaluation of alternatives is necessary. At the end of treatability testing, MDHES will prepare a public evaluation report summarizing the activities and conclusions. MDHES is currently considering the necessity of any treatability testing for the Idaho Pole site.

Updated schedule

The current schedule calls for the preliminary draft RI/FS report to be completed by January 1992. This report will summarize the findings of the field investigations, the risk assessment and evaluation of cleanup alternatives. Later in 1992, MDHES will begin the cleanup alternatives selection process and will prepare a proposed plan for site remediation that will be released for public comment.

POTENTIAL REMEDIES FOR THE IDAHO POLE SITE

	Groundwater	Wood preservative floating on groundwater	Soil
Horizontal and/or vertical barriers	X	X	X
Pump or intercept with subsequent treatment	X		
Physical treatment	X	X	X
Chemical treatment	X	X	X
Thermal treatment	X	X	X
Biological treatment	X	X	X
On-site disposal	X	X	X
Off-site disposal	X	X	X
Fixation/stabilization		X	
Covering and revegetating			X



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